

In which quadrant, or on which axis, does the terminal side of the each angle lie?

1.  $150^\circ$

Quad II

2.  $210^\circ$

Quad III

3.  $-60^\circ$

Quad IV

4.  $180^\circ$

negative x axis

5.  $-240^\circ$

Quad II

6.  $540^\circ$

$\frac{-240}{180}$   
negative x-axis

7.  $2\pi$

positive x axis

8.  $\frac{\pi}{3}$

Quad I

9.  $\frac{3\pi}{4}$

Quad II

10.  $\frac{7\pi}{3}$

Quad I

11.  $\frac{5\pi}{4}$

Quad III

12.  $\frac{10\pi}{3}$

Quad III

Convert each degree measure to radian measure.

13.  $150^\circ$

$$150 \left( \frac{\pi}{180} \right) = \frac{5\pi}{6}$$

14.  $210^\circ$

$$210 \left( \frac{\pi}{180} \right) = \frac{7\pi}{6}$$

15.  $45^\circ$

$$45 \left( \frac{\pi}{180} \right) = \frac{\pi}{4}$$

16.  $240^\circ$

$$240 \left( \frac{\pi}{180} \right) = \frac{4\pi}{3}$$

Each radian measure to degree measure.

17.  $\frac{\pi}{6} \left( \frac{180}{\pi} \right)$

$30^\circ$

18.  $\frac{\pi}{4} \left( \frac{180}{\pi} \right)$

$45^\circ$

19.  $\frac{5\pi}{6} \left( \frac{180}{\pi} \right)$

$150^\circ$

20.  $\frac{7\pi}{6} \left( \frac{180}{\pi} \right)$

$210^\circ$

Convert to degrees, minutes, and seconds, to the nearest second.

21.  $23.42^\circ$

$.42 \times 60 = 25.2$   
 $.2 \times 60 = 12$

$23^\circ 25' 12''$

22.  $15.27^\circ$

$.27 \times 60 = 16.2$   
 $.2 \times 60 = 12$

$15^\circ 16' 12''$

23.  $48.35^\circ$

$.35 \times 60 = 21$

$48^\circ 21' 0''$

24.  $62.73^\circ$

$.73 \times 60 = 43.8$   
 $.8 \times 60 = 48$

$62^\circ 43' 48''$

Convert to decimal degrees, to the nearest tenth of a degree.

25.  $14^\circ 33' 45''$

$\frac{33}{60} + \frac{45}{3600}$   
 $.55 + .0125$   
 $.5625$

$14.6^\circ$

26.  $38^\circ 24' 36''$

$\frac{24}{60} + \frac{36}{3600}$   
 $.4 + .01$   
 $.41$

$38.4^\circ$

27.  $35^\circ 45' 10''$

$\frac{45}{60} + \frac{10}{3600}$   
 $.75 + .0028$   
 $.7528$

$35.8^\circ$

28.  $28^\circ 32' 20''$

$\frac{32}{60} + \frac{20}{3600}$   
 $.5333 + .0056$   
 $.5389$

$28.5^\circ$